

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

1. (Currently amended): In an optical communication system comprising a plurality of optical transmission devices each which transmits an optical signal comprising an overhead portion and a payload portion, a method for monitoring optical transmission paths provided by said optical transmission devices, said method comprising:

in an optical transmission network administration device, designating a first optical transmission path to be monitored, a second optical transmission path to be monitored that is different from said first optical transmission path, and a third optical transmission path to be monitored that is different from said first and said second optical transmission paths;

identifying a first optical transmission device that is at the beginning of said first optical transmission path;

identifying a second optical transmission device that is between the beginning and the end of said second optical transmission path; and

identifying a third optical transmission device that is at the end of said third optical transmission path;

determining a first monitoring parameters signal for monitoring said first optical transmission path and a first overhead portion for storing said first monitoring parameters;

determining a second monitoring parameters for monitoring said second optical transmission path and a second overhead portion for storing said second monitoring parameters;  
and

determining a third monitoring parameters for monitoring said third optical transmission path and a third overhead portion for storing said third monitoring parameters;

transmitting a first instruction signal from said optical transmission network administration device to said first optical transmission device, wherein said first instruction signal informs said first optical transmission device of said first monitoring parameters and said

first overhead portion and instructs said first optical transmission device to combine [[a]] said first monitoring information signal parameters with a received transmission signal;

transmitting a second instruction signal from said optical transmission network administration device to [[a]] said second optical transmission device, wherein said second instruction informs said second optical transmission device of said second monitoring parameters and said second overhead portion and instructs said second optical transmission device to transmit ~~a received~~ said second monitoring information signal parameters to another optical transmission device; and

transmitting a third instruction signal from said optical transmission network administration device to said third optical transmission device, wherein said third instruction signal informs said third optical transmission device of said third monitoring parameters and said third overhead portion and instructs ~~an~~ said third optical transmission device to process [[a]] said third received monitoring information signal parameters;

receiving a first transmission signal at said first optical transmission device and in accordance with said first instruction signal, combining storing said first monitoring information signal with parameters in said first overhead portion of said first transmission signal to produce a modified first transmission signal and transmitting said modified first transmission signal to an optical transmission device in said first optical transmission path, ~~said first monitoring information signal representative of first optical transmission path monitoring parameters~~;

receiving a second transmission signal at said second optical transmission device and in accordance with said second instruction signal, extracting said second monitoring parameters from said second overhead portion of said second transmission signal and transmitting said extracted second monitoring parameters transmitting said second transmission signal to an another optical transmission device in within said second optical transmission path, said second overhead portion of a transmitting transmission signal; comprising a second monitoring information signal representative of second optical transmission path monitoring parameters; and

receiving a third transmission signal at said third optical transmission device and in accordance with said third instruction signal, extracting said third monitoring parameters from

said third overhead portion of said third transmission signal and performing end-point processing on said third monitoring parameters; information signal contained in said third transmission signal, said third monitoring information signal representative of third optical transmission path monitoring parameters

wherein said first or second or third monitoring parameters are determined according to what a monitoring operation is.

2. (Original): The method of claim 1 further including receiving user input representative of said first, second, and third optical transmission path monitoring parameters.

3. (Original): The method of claim 1 wherein a first portion of said first instruction signal is representative of said first optical transmission path monitoring parameters, said first monitoring information signals being based on said first portion.

4. (Canceled)

5. (Currently amended): The method of claim [[4]] 1 wherein said end-point processing includes transmitting monitor processing result signals to said first location.

6. (Currently amended): The method of claim [[4]] 1 wherein said first location is an optical transmission network administration device.

7. (Canceled)

8. (Currently amended): In an optical transmission device disposed in an optical transmission path for transmitting an optical signal comprising an overhead portion and a payload portion, a method for monitoring said optical transmission path comprising:

receiving a first instruction which informs a first monitoring information signal for monitoring said optical transmission path and a first overhead portion for storing said first monitoring information signal and instructs insertion of said first monitoring information signal in an said first overhead portion of a received transmission signal, wherein when a first transmission signal is received, then modifying an said first overhead portion of said first

transmission signal to include [[a]] said first monitoring information signal to produce a modified transmission signal, and transmitting said modified transmission signal;

receiving a second instruction which informs a second monitoring information signal for monitoring said optical transmission path and a second overhead portion for storing said second monitoring information signal and instructs transmission of [[a]] said second monitoring information signal contained in ~~an~~ said second overhead portion of a received transmission signal, wherein when a second transmission signal is received that includes [[a]] said second monitoring information signal in ~~an~~ said second overhead portion thereof, then said second transmission signal is transmitted without modification to said second monitoring information; and

receiving a third instruction which instructs processing of a third monitoring information signal contained in ~~an~~ a third overhead portion [[f]] of a received transmission signal, wherein when a third transmission signal is received that includes [[a]] said third monitoring information signal then end-point processing is performed on said third monitoring information signal, said third monitoring information signal being in ~~an~~ said third overhead portion of said third received transmission signal.

9. (Original): The method of claim 8 wherein a first portion of said first instruction signal is representative of optical transmission path monitoring parameters, said first monitoring information signal being based on said first portion.

10. (Original): The method of claim 8 wherein said first, second, and third instruction signals are received from a first location.

11. (Original): The method of claim 10 wherein said end-point processing includes transmitting monitor processing result signals to said first location.

12. (Currently amended): In an optical path comprising a plurality of optical transmission devices for transmission of a transmission signal therealong, each device receiving said transmission signal and transmitting said transmission signal, said transmission signal

comprising an overhead portion and a payload portion, a method for monitoring said optical transmission path comprising:

identifying a first set of said optical transmission devices associated with a first monitoring zone, said first set of optical transmission devices including first and second optical transmission devices designated as first and second end-point devices, the remaining optical transmission devices in said first set being designated as first relay devices;

identifying a second set of said optical transmission devices associated with a second monitoring zone, said second set of optical transmission devices including third and fourth optical transmission devices designated as third and fourth end-point devices, the remaining optical transmission devices in said second set being designated as second relay devices;

transmitting first ~~and second~~ insertion-type instruction signal signals respectively to said first ~~and third~~ end-point devices, said first insertion-type signal informs said first end-point device of a first monitoring information signal for monitoring said first monitoring zone and a first overhead portion for storing said first monitoring information signal and instructs insertion of said first monitoring information signal in said first overhead portion of a received transmission signal, said first end-point device thereby modifying said transmission signal by inserting [[a]] said first monitoring information signal into [[a]] said first overhead portion of said transmission signal and transmitting said transmission signal as modified[[,]];

transmitting second insertion-type instruction signal to said third end-point devices, said second insertion-type signal informs said third end-point device of a second monitoring information signal for monitoring said second monitoring zone and a second overhead portion for storing said second monitoring information signal and instructs insertion of said second monitoring information signal in said second overhead portion of a received transmission signal, said third end-point device thereby modifying said transmission signal by inserting [[a]] said second monitoring information signal into [[a]] said second overhead portion of said transmission signal and transmitting said transmission signal as modified;

transmitting passthrough-type instruction signals to said first relay devices and to said second relay devices, said passthrough-type instruction signals inform said first or second monitoring information signal and said first or second overhead portion; and

transmitting end-point processing type instruction signals to said second and fourth end-point devices, said end-point type instruction signals inform said first or second monitoring information signal and said first or second overhead portion.

13. (Original): The method of claim 12 further including receiving user-provided information representative of said first and second monitoring zones, wherein said optical transmission devices comprising said first and second sets are dependent on said user-provided information.

14. (Original): The method of claim 12 wherein if said first and second monitoring zones overlap such that some of said optical transmission devices belong both to said first set of optical transmission devices and to said second set of optical transmission devices, then said first and second portions of said transmission signal are different portion.

15. (Original): The method of claim 12 wherein if said first and second monitoring zones do not overlap, then said first and second portions of said transmission signal are the same portion.

16. (Original): The method of claim 12 further including for each of said first relay devices and each of said second relay devices, in response to receiving said passthrough-type instruction signals, transmitting a received transmission signal which includes monitoring information signals in a manner that does not modify said monitoring information signals.

17. (Original): The method of claim 12 further including for each of said second and fourth end-point devices, in response to receiving said end-point processing type instruction signal, performing end-point processing based on monitoring information signals contained in a received transmission signal.

18. (Original): The method of claim 12 wherein a first portion of each of said first and second insertion-type instruction signals is representative of optical transmission path monitoring parameters, said first monitoring information signals being based on said first portion of said first insertion-type instruction signal, said second monitoring information signals being based on said first portion of said second insertion-type instruction signal.

19. (Original): The method of claim 12 further including transmitting said insertion-type, said passthrough-type, and said end-point type instruction signals from a first location.

20. (Original): The method of claim 19 wherein said end-point processing includes transmitting monitor processing result signals to said first location.

21-35. (Canceled)

36. (New): The method of claim 1 wherein said overhead portion is a part of an overhead of SDH or SONET and wherein said overhead portion is unused.

37. (New): The method of claim 8 wherein said overhead portion is a part of an overhead of SDH or SONET and wherein said overhead portion is unused.

38. (New): The method of claim 12 wherein said overhead portion is a part of an overhead of SDH or SONET and wherein said overhead portion is unused.